



**Postpartum Contraceptive Use in Indonesia:
Recent Patterns and Determinants**

Lina Widyastuti, SKM, M.App.Pop.St
Directorate of Family Planning Services and Assurance
National Family Planning Coordinating Board, Indonesia
Jl, Permata No.1 Halim Perdana Kusumah
East Jakarta, Indonesia
lina_whe@yahoo.com

Udoy Sankar Saikia, Ph.D
Senior Lecturer and Associate Director, Applied Population Studies
School of Geography, Population and Environmental Management
Flinders University of South Australia

Acknowledgment: the author would like to acknowledge with gratitude the full funding provided by Center for International Training and Collaboration, National Family Planning Coordinating Board, Indonesia, to attend this ICRH Conference and making my presentation possible.

Abstract

CONTEXT: Contraception is critical for women in postpartum period to prevent unintended pregnancy and reduce the lifetime risk of maternal mortality by safe birth intervals. The purpose of this study was to investigate the pattern and the determinants of contraceptive use of women in the 12 months after delivery, during the period when contraceptive behavior is different from other periods regarding breastfeeding, postpartum amenorrhea and postpartum abstinence.

METHODS: The analysis based on the result of women questionnaire and the calendar data from IDHS 2007. The initiation of postpartum contraceptive use analyzed from calendar data by selecting the first use of contraceptive during 12 month after a birth in 5 years preceding the survey. The study employed multiple logistic regressions to investigate a dichotomous variable indicating use of any contraceptive method and multiple linear regressions to examine an interval variable representing, for those who use, the time from birth in months until contraception is started.

RESULTS: Overall, 75.4 % of women used contraception after childbirth. However, there were 8.7 percent mothers who did not use contraception and became pregnant. Age, education, wealth index, postpartum amenorrhea and postpartum abstinence not only found as statistically significant with the use of contraceptive, but also associated with the time in month from birth to contraception.

Introduction

The concept of implementing particular family planning programs for postpartum women is not new; however, there has not been much promotion for family planning programs targeting this crucial stage of woman's life (Thapa et al. 1992; Winikoff & Mensch 1991; McKaig & Chase 2007). Recently, international policymakers, program managers and health care providers have expressed renewed interest in postpartum family planning programs after realizing that service delivery during this period is a desirable and effective time to introduce contraceptives (Thapa et al. 1992; Quiterio et al. 2008).

This renewed attention on postpartum family planning program is gaining momentum in Indonesia as well. Based on the recommendations of the National Meeting on Family Planning Programs 2008, the postpartum family planning program, known by its Indonesian as *KB pascapersalinan dan pascakeguguran – KB PP & PK*, is considered as one of main programs which should be widely available in all the provinces. The purpose of these programs would be to increase the status of maternal and child health despite gaining a significant achievement in contraceptive prevalence rate (National Family Planning Coordinating Board, 2008). However, the study of the contraceptive use among postpartum women in Indonesia is very limited except some comparative studies conducted by Thapa et.al (1992), Ross and Winfrey (2001), and Becker and Ahmed (2001) using DHS data from various countries.

Rationale for Postpartum Family Planning

Family planning programs recognize the importance of family planning in the postpartum period for several reasons which include factors associated with: the return of fertility and

pregnancy risk; short birth intervals; risk periods for mothers and babies; and the unmet need for contraception.

Firstly, postpartum anovulation has a strong relation with the duration of breastfeeding (Potter et al. 1979, p. 151). A study of 29 breastfeeding women and 10 non-breast feeding women observed that, in the absence of bleeding and supplementary feedings, all breastfeeding women remained anovulatory for three months postpartum, and 96% of them up to six months (Rivera et al. 1988). In their study in Scotland, Howie et al. (1981) found that no ovulation could be detected among women who were breastfeeding exclusively. In contrast, the mean delay before first ovulation in non-breastfeeding women was found to be approximately 45 days, while no woman ovulated before 25 days after delivery (Campbell et al. 1987).

Secondly, postpartum family planning programs have the potential to affect the timing of pregnancies which resulted in optimum birth intervals. In order to reduce the risk of adverse maternal, perinatal and infant outcomes, WHO (2006) recommended that the interval between a live birth and an attempt at the next pregnancy should be 24 months. Considerable amounts of research have demonstrated that short birth intervals have an effect on infant and child mortality. Demographic and Health Survey (DHS) data analysis from 17 developing countries found that the risk of the newborn and infant dying decreases with increasing birth interval lengths up to 36 months (Rustein 2005, p. 7). In addition, short birth intervals (<24 months) also have a potential effect on the increased risk of maternal death and complications of pregnancies (Conde-Agudelo & Belizán, 2000).

Thirdly, there is a period of health risk for women and babies. A number of serious complications and over half of all maternal deaths occur in the postpartum period, especially in developing countries (Li et al. 1996). Problems may arise that, if not treated punctually and effectively, can bring about ill-health and even death for one or both of them. Improved use of family planning services during the postpartum period can reduce maternal and child morbidity and mortality (Li et al. 1996; Rivera 1997).

Finally, a study by Ross and Frankenberg (1993) revealed that women in the postpartum period had an unmet need for contraception, and that much of the unmet need of all women during the reproductive age fell within the general postpartum period. This study also found that most postpartum women expressed a desire to prevent pregnancy during first two years after delivery but had not obtained contraceptive protection. Subsequent to that, according to DHS surveys in 27 countries, only 3-8% of women in Sub Saharan Africa, Asia and Latin America wanted another child within two years after delivery (Ross & Winfrey 2001). The remainder, 92% to 97% of those women, did not want another child within two years after delivery, yet 35% of women had their children spaced less than two years apart.

Objective

The overall objective of this research is to explore the level and patterns of contraceptive use during the twelve months postpartum period in Indonesia. This aim has been translated into three specific objectives:

- 1) To examine the proportion of women who adopted a contraceptive method after birth
- 2) To examine the determinants of contraceptive use during postpartum period
- 3) To examine the determinants of the timing of contraceptive adoption

Data source and Methods

All data used in this study are derived from the 2007 Indonesia Demographic and Health Survey (IDHS), a nationally representative survey providing information on fertility, family planning, and maternal and child health. In the household questionnaires there is information regarding household composition according to age, sex, education and relationship to the head of household, household facilities and household possessions. The women's questionnaire includes a section on background, the children to whom they have given birth, the knowledge and use of family planning methods, breastfeeding, immunization, marriage and fertility preferences. The reproductive calendar section of the DHS collects retrospective information on contraceptive use. This section of the questionnaire asks women to recall month-by-month information about pregnancy, birth, and contraceptive adoption for a five year period before the survey. Based on the child's date of birth, the information on postpartum contraceptive use from this calendar section can be matched with the information from the individual core questionnaire (Gabresselasie et al.2008). The unit analysis of this study is the first ever use of contraceptives in the year after the first birth over the period covered by the reproductive calendar. The initiation of postpartum contraceptive use analyzed from calendar data by selecting the first use of contraceptive during 12 month after a birth in 5 years preceding the survey. Amenorrhea status is measured by whether or not the woman was having resumed menstrual cycles from childbirth until contraception adoption while abstinence status is measured by whether or not having resumed sexual relations from childbirth until contraception adoption.

This study focused on two dependent variables: a variable indicating use of any contraceptive method; and a time interval variable representing the time, in months, from birth until contraception is started for those who chose to use. For first dependent variable, the multiple

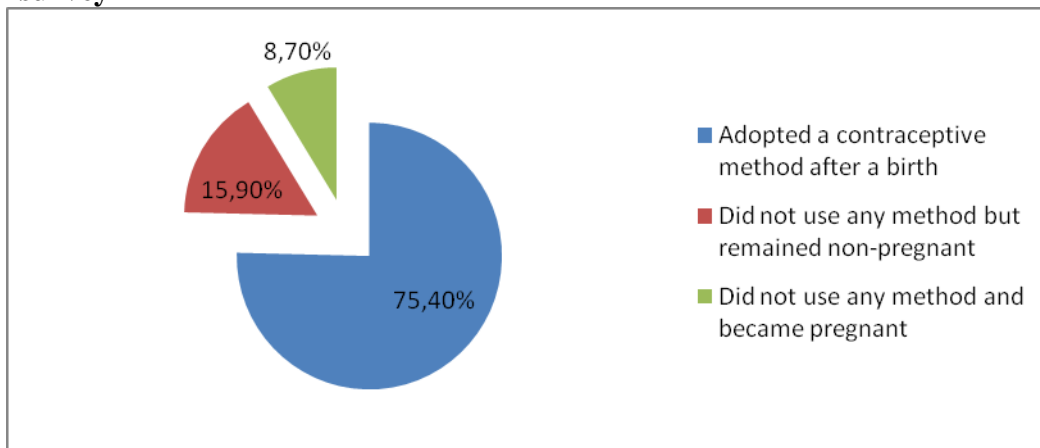
logistic regressions were employed in multivariate analysis because of the categorical form of the dependent variable such as use or not use contraception (Pallant 2007). In analyzing the effect of the independent variables on the time from birth until contraception is started, multiple linear regressions then applied in relating the time duration from birth to contraception to the set of independent variables such as women's age, women's education, wealth index, place of residence, place of delivery and exposure to media, and postpartum behaviours such as duration of breastfeeding, duration of amenorrhea and duration of abstinence). In multiple regression models, in order to insure that the results are interpretable, a categorical variable with more than two levels such as education, age, wealth index, and place of delivery in this study are needed to recoding using dummy method into a number of separate, dichotomous variables (Chan 2004).

Results

Contraceptive Use after a Birth in Postpartum Period

Based on the reproductive calendar data, Figure 1 shows the proportion of mothers who delivered a baby in the five years before the survey and who: did not use contraception after a birth but remained non pregnant; did not use contraception after a birth and became pregnant; and who used a contraceptive method after a birth. The proportion of mothers who adopted contraception after birth is considerably high (75.4%). Among those who used contraception, 73% of mothers used hormonal methods, 21.4% used non-hormonal methods, and only 5.7% used traditional methods. However, there were 8.7% of mothers who did not use contraception after a birth, and did become pregnant. Based on the section in the 2007 IDHS which asked a series of questions about any current pregnancy and about each child born in the five years before the survey, it can be calculated that 86.3% of pregnancies at this period were wanted, 9.4% were wanted but at a later time, and 4.3% were not wanted at all.

Figure 1: Contraceptive use status after first birth in five years preceding the survey



The timing of contraceptive adoption

To examine when during the postpartum period women were more likely to use contraceptives, a comparison of women who used the hormonal, non-hormonal and traditional methods at six different postpartum periods are given in Table 1. For all types of method, the majority of women initiated use before four months postpartum, which implied that the demand for effective contraception was high immediately after delivery.

Table 1: Percent distribution of contraceptive use after a birth by time postpartum

Time from birth to contraception	Type of contraceptive used after first baby			Total
	Hormonal	Non-hormonal	Traditional	
1-2	53.5%	49.8%	48.7%	4913 (52.5%)
3-4	33.8%	37.6%	32.6%	3233 (34.5%)
5-6	6.1%	5.0%	8.7%	563 (6.0%)
7-8	3.7%	4.0%	5.8%	362 (3.9%)
9-10	1.0%	1.3%	2.1%	106 (1.1%)
11-12	1.9%	2.2%	2.1%	188 (2.0%)
Total	100.0%	100.0%	100.0%	100.0%

The Adoption of Postpartum Contraceptive Use Relative to Postpartum Amenorrhea and Postpartum Abstinence

Table 2: Percentage adopting contraception relative to postpartum amenorrhea and postpartum abstinence

Contraceptive adoption relative to	%
Amenorrhea	
Adopt before return of menstruation	27.5
Adopt after return of menstruation	47.9
Didn't adopt and not amenorrhea at the time of interview	0.9
Didn't adopt and amenorrhea at the time of interview	23.7
Abstinence	
Adopt before resuming sex	22.7
Adopt after resuming sex	52.7
Didn't adopt and not abstaining at the time of interview	0.8
Didn't adopt and abstaining at the time of interview	23.8

Table 2 presents the percentage of mothers adopting any method of contraception relative to those postpartum behaviors. The fact that nearly half of mothers adopted a method either after the return of menstruation or after resuming sex, implies that women were already aware that they faced the risk of pregnancy at these critical times.

Determinants of Postpartum Contraceptive Use

The results of multiple logistic regression analyses showed that, with the exception of place of delivery and place of residence, all of the independent variables undertaken in the study had significant effects on the use of contraceptive methods (table 3). This was indicated through their significant levels or *p* value which were all below 0.05 ($\alpha = 95\%$). This indicates that younger women who had a good education, were wealthy, and had been exposed to the media more often were more likely to use postpartum contraception. Regarding postpartum behaviours, it was found that woman who abstained or were amenorrheic were less likely to use postpartum contraception, while woman who were breastfeeding were more likely to use it.

Table 3: Multivariate logistic regression analysis of starting contraception postpartum

Characteristics	B	S.E	Sig. level	Exp (B)
Women's age				
15-24 *			0.000	
25-34	0.656	0.064	0.000	1.927
35-49	0.393	0.052	0.000	1.481
Womens' education				
No education *			0.000	
Primary	0.837	0.119	0.000	2.31
Secondary +	1.02	0.122	0.000	2.772
Wealth index				
Poor *			0.000	
Middle	0.363	0.062	0.000	1.438
Rich	0.42	0.063	0.000	1.522
Exposure to media				
No expose *			0.000	
To at least one media	0.505	0.1	0.000	1.658
Breastfeeding status				
Not breastfeeding*				
Breastfeeding	0.284	0.084	0.001	1.328
Amenorrhea status				
Not in Amenorrhea	2.392	0.102	0.000	10.931
Amenorrhea*				
Abstinence status				
Not in abstinence	2.269	0.084	0.000	9.672
Abstinence*				

*reference category

** Total sample = 12,420 women

Determinants of Time in Months from Birth to Contraception

The results of the multiple linear regressions as shown in table 4 suggested that breastfeeding status and exposure to media did not have a significant association with time duration from birth to contraception (p value ≥ 0.005). The results as shown in table 4 confirmed that the period of time before starting contraception for women in the younger age group was shorter than was the period for the older group. For women who delivered their babies in government facilities, the period of time before starting the use of contraceptives was shorter than the period was for those who delivered in private facilities might be due to the provider of family planning in government facilities encourage more a woman to use contraception after birth.

According to the wealth index, wealthier women experienced a shorter period time from birth to postpartum contraceptive use compared to their counterparts. The period of time from birth to postpartum contraception use for women with no education was longer than for those who had a secondary level of education. Women who lived in rural areas and those who abstained or were amenorrheic, they waited a longer period of time before starting contraception.

Table 4: Multiple linear regression of time in months from birth to contraception

Characteristics	B	T	sig. level
Intercept	3.956	51.982	
Age			
Age 15-24	-0.380	-6.991	0.000
Age 25-34	-0.152	-3.232	0.001
Age 35-49 *			
Place of delivery			
Delivered at home	-0.73	-1.636	0.102
Delivered at government facilities	-0.192	-2.972	0.003
Delivered at private facilities*			
Education			
No education	0.744	5.094	0.000
Primary education	-0.43	-1.032	0.302
Secondary +*			
Wealth			
Poor	.0286	5.557	0.000
Middle	.048	0.922	0.356
Rich*			
Type of place residence	0.313	7.181	0.000
Abstinence status	-1.419	-35.204	0.000
Amenorrhea status	-0.805	-20.164	0.000
Breastfeeding status	-0.91	-1.542	0.123

* *Reference category*

Discussion

The purpose of this study was to examine the pattern and the determinants of contraceptive use of women in the 12 months after delivery. This is usually when contraceptive behaviour is different from other times regarding breastfeeding, postpartum amenorrhea, postpartum abstinence, and other factors. The study found that contraceptive use during this period is 75.4% which suggested that the rationale for providing this service as part of the family planning program, as a result of the high demand for effective contraception immediately after delivery, was justified in the Indonesian setting.

The choice of contraceptive method and the time at which its use begins should be taken into account when adopting contraceptive postpartum (Truitt et al. 2009). In this study, the decision to use or not to use a contraceptive method was positively influenced by socioeconomic and demographic variables such as age, education, place of residence, and wealth index. This result was consistent with previous analyses in four developing countries where older, better educated, wealthier women, women who lived in urban areas, as well as those women who were regularly exposed to media, and who delivered in private health care facilities, were all more likely to use contraception (Gebresselasie et al 2008). This patterns might indicates that even though the postpartum contraceptive use is high, the access and quality of family planning services still have to be improved so could be more accessible to women who had low education, poor, and lived in rural areas

In this study, the resumption of menses and of sexual activity was related to a high incidence of contraceptive use (47.87% and 52.60% respectively). This may have been because women were aware of fertility return, which became one of catalysts to start using contraception after a birth. This is similar to the findings of the research by Kennedy et al. (1996) in Thailand

which found that 70% of cycling women adopted a contraceptive method after birth. The study's results found that the breastfeeding status was positively related to the postpartum use of contraceptives. From the logistic regression, it was evident that use of contraception was likely to be more common among women who were breastfeeding, whereas some evidence found that breastfeeding was negatively associated with contraception use (Jain & Bongaarts 1981; Zurayk 1981, Gabresselasie et al.2008), since women might have viewed breastfeeding and contraception as an alternative fertility control method, and therefore might have chosen between them (Milman 1985).

However, WHO (1983 in Weis 1991) argued that breastfeeding was the norm in most developing countries, so the relatively high percentage of women who used contraceptives at this time indicated that a large number of women were both lactating and using contraception. Also consistent with this figure were the data from the World Fertility Survey from 14 countries analysed by Pebley et al. (1985). They also found that while 12 other countries included in the analysis figured that only a relatively small proportion of ever married women in each country had used contraception and breastfed at the same time, the figure for Indonesia showed that a breastfeeding woman was more likely to use contraception was that she was also using contraception.

In this study, most women, irrespective of whether they were breastfeeding or not, were using hormonal contraception four months after childbirth. Hormonal methods, as suggested by WHO (2006), can be used immediately after childbirth if they contain progestin-only, while estrogen-containing methods can safely be initiated six weeks to six months postpartum for women who are breastfeeding, and three weeks postpartum for women who are not breastfeeding. In the family planning program however, the problem of urging contraception

immediately after childbirth may arise due to the issue of contraception redundancies (Curtis 1996) since it might result in overlapping protection with postpartum anovulation, that is, the situation in which ovulation does not occur thus reducing the likelihood of pregnancy again.

Even though childbirth is followed by a period of anovulation, the use of contraception postpartum should be considered, especially for non-exclusive breastfeeding women who want more protection from pregnancy. This is due to the fact that the period of an ovulation itself may be indicated belatedly since ovulation frequently precedes the first potential menses by about two weeks (Perez et al. 1971). Despite the high percentage of postpartum contraceptive use, this study records that by delaying the adoption of contraception, almost 9% of women become pregnant during the 12 months after a birth, exposing them to the risk of repeat rapid pregnancy which has been associated with adverse health and social consequences for both mother and newborn, the risk of unwanted pregnancy, and high proportions of short birth intervals (Trussel and Santow 1991).

Conclusion

The results of the study showed that the demand of postpartum family planning in Indonesia was high immediately after delivery. This indicated that, Indonesian family planning programs have already recognized the importance of family planning during the postpartum period. As evidenced by a growing body of knowledge, as well as by this study's results, contraceptive behaviour of women during the postpartum period was different from their behaviour at other times regarding the choice of method, the time for initiation, the return of fertility, the risk of pregnancy, short birth intervals, and their relationship with other postpartum behaviours such as breastfeeding, postpartum amenorrhea and postpartum abstinence. Therefore, specific policies are needed to improve the quality of postpartum

through promoting LAM, strengthening informed choice strategy and integrating postpartum family planning programs with maternal and child health services.

References

- Becker, S & Ahmed, S 2001, 'Dynamics of contraceptive use and breastfeeding during the postpartum period in Peru and Indonesia', *Population Studies*, vol. 55, no. 2, pp. 165-179.
- Campbell, OM, Gray, RH, Zacur, HA, Labbok, MH & Macrae, SL 1987, 'Postpartum return of ovarian activity in non-breastfeeding women monitored by urinary assays', *Journal of Clinical Endocrinol Metabolism*, vol. 64, p. 645.
- Chan, Y, H 2004, 'Linear regression analysis', *Singapore Medical Journal*, vol. 45, p.55-62
- Conde-Agudelo, A & Belizán, J 2000, 'Maternal morbidity and mortality associated with interpregnancy interval', *British Medical Journal*, vol. 321, pp. 1255-1259.
- Curtis, SL 1996, 'The impact of postpartum redundant use of contraception on contraceptive failure rates', *Demography*, vol. 33, no. 1, pp. 24-34.
- Gabreselassie, T, Rustein, SO & Mishra, V 2008, 'Contraceptive use, breastfeeding, amenorrhea, abstinence during the postpartum period: An analysis of four countries', *DHS Analytical studies*, no. 14,
- Ginneken, V, J, K, 1978, The impact of prolonga breastfeeding on birth intervals and on postpartum amenorrhea, in *Nutrition and Human Reproduction* (Edited by Mosley W. H.). Plenum, New York,
- Howie, PW, McNeilly, AS, Houston, MJ, Evers, JLH & Lancranjan, I 1992, 'Effect of supplementary food on suckling patterns and ovarian activity during lactation', *British Medical Journal*, vol. 283, p. 757
- Jain, A, K & Bongaarts 1981, 'Breastfeeding: patterns, correlates, and fertility effects', *Studies in Family Planning*, vol.12, pp.79-99.
- Kennedy, KI, Labbok, MH, Van Look 1996, 'Lactational amenorrhea method for family planning', *International Journal of Gynecology & Obstetrics*, vol. 54, pp. 55-57.
- Li, XF, Fortney, JA, Kotelchuck, M & Glover, LH 1996, 'The postpartum period: the key to maternal mortality', *International Journal of Gynecology and Obstetrics*, vol. 54, pp. 1-10.
- MacKaig, C & Chase, R (eds) 2007, *Postpartum family planning technical consultation - Meeting report*. Washington, DC, 14 November 2006. JHPIEGO: Baltimore, Maryland.
- Masnick G, S 1979, The demographic impact of breastfeeding: a critical review. *Journal of Human Biology*, vol.51, p. 206.
- Millman, S. 1985. Breastfeeding and contraception: why the inverse association? *Studdes in Family Planning*, vol. 16, pp. 61-75.
- National Family Planning Coordinating Board 2008, National Family Planning Meeting: The 2008 evaluation of family planning programs, BKKBN, Jakarta.
- Pallant, Julie 2007, *SPSS Survival Manual: a step by step guide to data analyzing using SPSS (3rd edn)*, Ligare Book Printer, Sydney.

- Pebley, A, R, Goldberg, H,I, Menken, J 1985, ‘ Contraceptive use during lactation in developing countries’, *Studies in Family Planning*, vol.16, pp. 40-51.
- Potter, RG, Kobrin, FE & Langsten, RL 1979, ‘Evaluating acceptance strategies for timing of postpartum contraception’, *Studies in Family Planning*, vol. 10, no. 5, pp. 151-160.
- Quiterio, G, Molina, Miric, M, Vernon, R & Rivero-Fuentes, ME 2008, ‘Dominican Republic: Diagnostic study of postpartum, post abortion and PMTCT contraceptive services’, *FRONTIERS Final Report*. Washington, DC: Population Council.
- Rivera R, Kennedy, KI, Ortiz, E, Barrera, M & Bhiwandiwalla, PP 1988, ‘Breastfeeding and the return of ovulation in Durango, Mexico’, *Fertil Steril*, vol. 49, no. 5, pp. 780-787.
- Runyon, R, P & Haber, A, 1994. *Fundamentals of behavioral statistics*, Random House, New York.
- Rutstein, SO 2005, ‘Effects of preceding birth intervals on neonatal, infant and under-five years mortality and nutritional status in developing countries: evidence from the demographic and health surveys’, *International Journal of Gynecology and Obstetrics*, vol. 89, pp. S7-S24.
- Ross, JA & Frankenberg, E 1993, *Findings from Two Decades of Family Planning Research*, Population Council: New York.
- Ross, JA & Winfrey, WL 2001, ‘Contraceptive use, intention to use and unmet need during the extended postpartum period’, *International Family Planning Perspectives*, vol. 27, no.1, pp. 20-27.
- Thapa, S, Kumar, S, Cushing, J & Kennedy, K 1992, ‘Contraceptive use among postpartum women: Recent patterns and programmatic implications’, *International Family Planning Perspectives*, vol. 18, no. 3, pp. 83-92.
- Truitt, S, T, Fraser, A, B, Gallo, M, F, Lopez, L ,M , Grimes, D, A, Schulz, K, F 2009, Combined hormonal versus nonhormonal versus progestinonly contraception in lactation, *Cochrane Database of Systematic Reviews* 2003, Issue 2. Art. No.: CD003988.
- Trussell, J & Santow, G, 1991, Is the Bellagio consensus statement on the use of contraception sound public-health policy? *Health Transition Review*, vol. 1, pp. 105-107.
- Weis, P 1993, ‘The contraceptive potential of breastfeeding in Bangladesh’, *Studies in family planning*, vol. 24, pp. 100-108.
- Winikoff, B & Mensch, B 1991, ‘Rethinking postpartum family planning’, *Studies in Family Planning*, vol. 22, no.5, pp. 294-307.
- World Health Organization 2006, *Report of a WHO Technical Consultation on Birth Spacing*, WHO, Geneva.
- Zurayk, H 1981, ‘Breastfeeding and contraceptive patterns postpartum: a study in South Lebanon’, *Studies in Family Planning*, vol. 12, no. 5, pp. 237-247.